

lower figure in the decimal place the entire area of the spot was taken as belonging to the degree of latitude indicated by the integral part of the number. Thus a spot at lat.  $9^{\circ}.5$  was taken as wholly belonging to lat.  $10^{\circ}$ ; but one at  $9^{\circ}.4$  to lat.  $9^{\circ}$ .

The diagram shows in a marked manner the gradual decline in the distance from the equator of Sun-spots as the minimum is approached, and the sudden appearance of spots in high latitudes immediately after the minimum is passed and a new cycle has commenced.

*Royal Observatory, Greenwich:*  
1889 November 8.

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*Note on Solar Spots in high South Latitudes.*

By Rev. S. J. Perry, D.Sc., F.R.S.

It may be well to draw attention to the spots in high latitudes that have been visible on the solar surface during the last few months. These spots were all in the southern hemisphere, and with the exception of two groups were visible only for a short period. The following table comprises those recorded at Stonyhurst:—

Date.	S. Latitude.	Longitude.	Recorded duration.
1888, Dec. 30	$36^{\circ}$	$195$	1 day
1889, June 5	29	238	1 „
30	40	251	2 days
Aug. 2	$21^{\circ}.3$	155 to 165	36 „
Sept. 7	22	149.5 to 158.5	27 „
Oct. 8	$28^{\circ}.5$	9.5	1 day
10	25	24.5	1 „

The two large groups, whose latitude was not exceptionally high, form a narrow disturbed area extending over only  $15^{\circ}$  of longitude, and might almost be reckoned as a single disturbance, the first disappearing as the latter formed. The spot in latitude  $40^{\circ}$ , which was visible in England for two days, was also observed in North America. It is among the highest on record. The exceptional observations of Capocci, Peters, and Carrington all followed the minimum epoch of Sun-spots. The present increase in the number of spots in high latitudes agrees well with recorded observations of former minima.

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*Note to accompany a Drawing of the Milky Way.* By Otto Boeddicker, Ph.D., Astronomer at the Earl of Rosse's Observatory at Birr Castle, Parsonstown.

(Communicated by the Earl of Rosse.)

The drawing of the Milky Way referred to was begun by me on October 24, 1884, and has occupied the greater part of my time and energy ever since. It was undertaken in the belief that an accurate representation of the galaxy, such as it appears to the naked eye, was an astronomical desideratum, and would be of some value for a variety of special investigations. In answer to a suggestion from your Secretary I propose now to give a short sketch of the history of the drawing.

First, I copied those maps of Argelander's *Uranometria Nova*, which should contain parts of the Milky Way, with the difference, however, that I indicated the stars by plain discs of different diameter only, in order to approach more nearly the actual appearance of the sky. Then, under exclusion of every trace of extraneous light, I examined the Milky Way, and as soon as I was satisfied that I had made out some feature, I turned on an incandescent lamp, and, by means of the stump, I inserted the detail observed in the map. This alternate seeing into darkness and on white paper (covered with black spots) proved a very great strain on the sight. Besides, as the eyes, after I had drawn the part observed, only very gradually regained their former sensitiveness, the work proceeded but slowly, three or four hours' drawing representing but a very small portion of it. As much as possible I drew the different sections only when they were near the meridian, in order to obtain the conditions most favourable for atmospheric transparency. This involved for the greater part of the Milky Way the necessity of my lying flat on my back (or nearly so) in the open air for hours together—a position which, especially on frosty nights, proved somewhat trying, for no amount of clothing was found sufficient to counteract the radiation of heat from the body.

The results were verified on consecutive nights, and further details added, so that a large number of nights was devoted to a single section. A further control was obtained by the overlapping of the sections, so that large portions of the Milky Way had to be drawn twice or even three times. This was in all cases done directly from the sky. In fact, the separate sections were never compared with each other until I had ceased to work at them. Next I constructed a large chart in stereographic projection down to  $100^\circ$  North Polar Distance, and inserted the parts of the Milky Way as furnished by the sections. This was required in order to deduce a true picture of the gradation of light in the Milky Way, or, in other words, a general uniform